

- U.S. DEPARTMENT OF DEFENSE. *The 1988 Worldwide Survey of Substance Abuse and Health Behavior Among Military Personnel*. Report of the Research Triangle Institute to the Office of the Assistant Secretary of Defense (Public Affairs), Department of Defense, 1988.
- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *Promoting Health/Preventing Disease: Objectives for the Nation*. U.S. Department of Health and Human Services, Public Health Service, 1980a.
- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *The Health Consequences of Smoking for Women. A Report of the Surgeon General*. U.S. Department of Health and Human Services, Public Health Service, Office of the Assistant Secretary for Health, Office on Smoking and Health, 1980b.
- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *The Health Consequences of Smoking. The Changing Cigarette: A Report of the Surgeon General*. U.S. Department of Health and Human Services, Public Health Service, Office of the Assistant Secretary for Health, Office on Smoking and Health. DHHS Publication No. (PHS) 81-50156, 1981.
- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *The Health Consequences of Smoking: Cancer. A Report of the Surgeon General*. U.S. Department of Health and Human Services, Public Health Service, Office on Smoking and Health. DHHS Publication No. (PHS) 82-50179, 1982.
- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *The Health Consequences of Smoking: Cardiovascular Disease. A Report of the Surgeon General*. U.S. Department of Health and Human Services, Public Health Service, Office on Smoking and Health. DHHS Publication No. (PHS) 84-50204, 1983.
- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *The Health Consequences of Smoking: Chronic Obstructive Lung Disease. A Report of the Surgeon General*. U.S. Department of Health and Human Services, Public Health Service, Office on Smoking and Health. DHHS Publication No. (PHS) 84-50205, 1984.
- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *The Health Consequences of Smoking: Cancer and Chronic Lung Disease in the Workplace. A Report of the Surgeon General*. U.S. Department of Health and Human Services, Public Health Service, Office on Smoking and Health. DHHS Publication No. (PHS) 85-50207, 1985.
- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *The Health Consequences of Using Smokeless Tobacco. A Report of the Advisory Committee to the Surgeon General, 1986*. U.S. Department of Health and Human Services, Public Health Service. NIH Publication No. 86-2874, April 1986a.
- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *Smoking and Health. A National Status Report. A Report to Congress*. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Center for Health Promotion and Education, Office on Smoking and Health. DHHS Publication No. (CDC) 87-8396, 1986b.
- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *The 1990 Health Objectives for the Nation: A Midcourse Review*. U.S. Department of Health and Human Services, Public Health Service, Office of Disease Prevention and Health Promotion, November 1986c.
- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *The Health Consequences of Smoking: Nicotine Addiction. A Report of the Surgeon General, 1988*. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Center for Health Promotion and Education, Office on Smoking and Health. DHHS Publication No. (CDC) 88-8406, 1988.
- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *Adult Use of Tobacco, 1986*. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Office on Smoking and Health, in press.a.

- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. *The 1987 National Adolescent Student Health Survey*. U.S. Department of Health and Human Services, Public Health Service, Office of Disease Prevention and Health Promotion, in press, b.
- U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. *Use of Tobacco: Practices, Attitudes, Knowledge, and Beliefs, United States—Fall 1964 and Spring 1966*. U.S. Department of Health, Education, and Welfare, Public Health Service, National Clearinghouse for Smoking and Health, July 1969.
- U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. *Adult Use of Tobacco, 1970*. U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control, Health Services and Mental Health Administration, National Clearinghouse for Smoking and Health, June 1973a.
- U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. *The Health Consequences of Smoking*. U.S. Department of Health, Education, and Welfare, Public Health Service, Health Services and Mental Health Administration. DHEW Publication No. (HSM) 73-8704, 1973b.
- U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. *Adult Use of Tobacco—1975*. U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control, 1976.
- U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. *Smoking and Health. A Report of the Surgeon General*. U.S. Department of Health, Education, and Welfare, Public Health Service, Office of the Assistant Secretary for Health, Office on Smoking and Health. DHEW Publication No. (PHS) 79-50066, 1979a.
- U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. *Teenage Smoking: Intermediate and Long-Term Patterns*. U.S. Department of Health, Education, and Welfare, National Institute of Education, 1979b.
- U.S. PUBLIC HEALTH SERVICE. *Smoking and Health. Report of Advisory Committee to the Surgeon General of the Public Health Service*. U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control. PHS Publication No. 1103, 1964.
- VELICER, W.F., DICLEMENTE, C.C., PROCHASKA, J.O., BRANDENBURG, N. Decisional balance measure for assessing and predicting smoking status. *Journal of Personality and Social Psychology* 48(5):1279–1289, May 1985.
- WALLSTON, K.A., WALLSTON, B.S., DEVELLIS, R. Development of the Multidimensional Health Locus of Control (MHLC) scales. *Health Education Monographs* 6(2):160–170, Spring 1978.
- WARBURTON, D.M., WESNES, K., SHERGOLD, K., JAMES, M. Facilitation of learning and state dependency with nicotine. *Psychopharmacology* 89(1):55–59, May 1986.
- WARNER, K.E. Possible increases in the underreporting of cigarette consumption. *Journal of the American Statistical Association* 73(362):314–318, June 1978.
- WARNER, K.E. Cigarette advertising and media coverage of smoking and health. *New England Journal of Medicine* 312:384–388, February 7, 1985.
- WARNER, K.E., MURT, H.A. Impact of the antismoking campaign on smoking prevalence: A cohort analysis. *Journal of Public Health Policy* 3(4):374–390, December 1982.
- WEINKAM, J.J., STERLING, T.D. Changes in smoking characteristics by type of employment from 1970 to 1979/1980. *American Journal of Industrial Medicine* 11:539–561, 1987.
- WEISSMAN, W., GLASGOW, R., BIGLAN, A., LICHTENSTEIN, E. Development and preliminary evaluation of a cessation program for adolescent smokers. *Psychology of Addictive Behaviors* 1(2):84–91, 1987.
- WEST, R.J., JARVIS, M.J., RUSSELL, M.A.H., CARRUTHERS, M.E., FEYERABEND, C. Effect of nicotine replacement on the cigarette withdrawal syndrome. *British Journal of Addiction* 79:215–219, 1984.

- WIKLER, A. Requirements for extinction of relapse-facilitating variables and for rehabilitation in a narcotic-antagonist program. *Advances in Biochemistry and Psychopharmacology* 8: 399–414, 1973.
- WIKLER, A., PESCOR, F.T. Classical conditioning of a morphine abstinence phenomenon, reinforcement of opioid-drinking behavior and “relapse” in morphine-addicted rats. *Psychopharmacologia* (Berlin) 10:255–284, 1967.
- WILLIAMSON, D.F., SERDULA, M.K., KENDRICK, J.S., BINKIN, N.J. Comparing the prevalence of smoking in pregnant and nonpregnant women, 1985 to 1986. *Journal of the American Medical Association* 261(1):70–74, January 6, 1989.
- WOHLFORD, P. Initiation of cigarette smoking: Is it related to parental smoking behavior? *Journal of Consulting and Clinical Psychology* 34(2):148–151, April 1970.
- WORLD HEALTH ORGANIZATION. *Expert Committee on Addiction-Producing Drugs*. Seventh Report, Technical Report Series No. 116. Geneva: World Health Organization, 1957.
- WORLD HEALTH ORGANIZATION. *Tobacco or Health. Report by the Director-General*. Forty-First World Health Assembly, provisional agenda item 22. Geneva: World Health Organization, March 23, 1988.
- YATES, G.L., MACKENZIE, R., PENNBRIDGE, J., COHEN, E. A risk profile comparison of runaway and non-runaway youth. *American Journal of Public Health* 78(7):820–821, July 1988.
- ZABIN, L.S. The association between smoking and sexual behavior among teens in US contraceptive clinics. *American Journal of Public Health* 74(3):261–263, March 1984.

CHAPTER 6

SMOKING PREVENTION, CESSATION, AND ADVOCACY ACTIVITIES

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INTRODUCTION

The tobacco control movement in the United States has involved the efforts of many diverse groups. Voluntary health agencies, State and local health departments, the Federal Government, medical organizations, private industry, and grassroots organizations have all contributed. This Chapter reviews the nonpolicy activities of these groups in the areas of smoking prevention and cessation, and advocacy over the past 25 years. It will not provide a complete review of the efficacy of different prevention and cessation methods; this has been done by others (e.g., Lichtenstein and Brown 1980; Pechacek 1979; Schwartz 1969, 1987; Schwartz and Rider 1978; Flay 1985a,b; Best et al. 1988; Biglan and Ary 1985; McCaul and Glasgow 1985; Snow, Gilchrist, and Schinke 1985; US DHEW 1979b; US DHHS 1986a). A selective review of the broader trends in these activities will provide a basis for understanding the current status of the smoking control movement and its possible future directions. A review of advocacy activities intended to lead to changes in smoking control policies over the last 25 years will serve as a bridge between this Chapter and Chapter 7, Smoking Control Policies.

The smoking prevention and cessation activities discussed in this Chapter were designed as direct antismoking messages incorporating advice and instruction on how to remain or become a nonsmoker. Smoking prevention programs include school curricula, both those specific to smoking and those integrated within a multicomponent health education approach; media-based efforts; and an array of other materials, events, and campaigns. Smoking cessation programs include a broad variety of activities ranging from self-help cessation materials to special smoking groups to the use of medication. The programs occur in various channels in the community including worksites, physician offices, hospitals, schools, and media.

Integrating Educational and Behavioral Interventions With Policy Initiatives

The integration of educational and behavioral programs with policy initiatives, including those that affect the price of cigarettes, the information printed on the packaging, the manner in which cigarettes can be advertised, the conditions of their sale, and the circumstances under which they may be smoked, has been one of the most important recent trends in smoking prevention, as well as in cessation-oriented interventions. Projects such as "Tobacco-Free America Project" (Bailey 1987) work on both fronts, advocating nonsmoking policies in schools along with providing more traditional smoking prevention materials and programs to reduce the number of new smokers. Advocacy activities and lobbying leading to policy changes were almost nonexistent at the time of the 1964 Surgeon General's Report, but became progressively more evident during the 1970s and expanded significantly during the 1980s, setting the stage for many of the changes in prevention and cessation policies and activities.

Even when explicit policy components are lacking in prevention or cessation programs, the content and impact of these programs should be considered in the context of the social and policy climate prevailing at the time of their design and implementation (see Best et al. 1988; Chassin, Presson, Sherman 1985; Chassin et al. 1987; Perry and Murray 1982). For example, the effects of a prevention or cessation activity might

be moderated by whether it was conducted during the era of television cigarette commercials alone (pre-1967), the era of both commercials and antismoking public service announcements (PSAs) mandated by the Government (1967–70) (see Chapter 7), or during the subsequent era of no televised cigarette commercials and the end of the mandated PSAs (post-1970). Other potentially relevant policy contexts include school regulation of student smoking and the level of public debate and restrictions on smoking in other settings at the time of the smoking prevention or cessation program. Both the smoking prevention and cessation programs and the public policy context remain in a continuous process of evolution and interaction.

PART I. SMOKING PREVENTION ACTIVITIES

Overview of Major Approaches to Smoking Prevention

In the years since the release of the first Surgeon General's Report (US PHS 1964), both the basic design of prevention efforts and their designated targets have changed. Generally, there has been a shift in the target group from high school and college students (US PHS 1964) to middle school and junior high school students, and a shift away from information-oriented antismoking education to psychosocial curricula designed not only to address youth's motivations to smoke but also to impart skills for resisting influences to smoke (Botvin, Eng, Williams 1980; Flay 1985a; McAlister, Perry, MacCoby 1979).

The changes in focus and design and the proliferation of prevention programs since the early 1960s have resulted in such a variety of approaches that they are now rarely considered together in reviews of smoking prevention programs. These differing approaches include (1) media-based prevention programs and resources, (2) smoking prevention as a component of multicomponent school health education curricula, and (3) smoking prevention through the psychosocial approaches of social influence and generic life skills curricula. Other smoking prevention resources and activities such as physician presentations to school assemblies, brochures, community campaigns, and educational resources have been sponsored by voluntary, professional, and community groups.

While the prevention approaches overlap considerably, both in form and content, this differentiation of program types can serve as a framework for tracing the prevention initiatives and directions taken by various organizations, as well as for highlighting the evolution of smoking prevention programs over the years. The following outline of the major prevention approaches will be expanded upon in a later section.

Media-based messages and campaigns were part of the earliest smoking prevention activities. The National Clearinghouse for Smoking and Health (later reorganized as the Office on Smoking and Health (OSH)) and the voluntary health organizations were among the early and continuing sponsors of newspaper and broadcast antismoking campaigns. These smoking prevention campaigns have continued with varying intensity over the decades, continuing into the present era of controlled research in the development and evaluation of media-based smoking prevention programs (e.g., Bauman et

al. 1988; Flay et al. 1988; NCI 1986a; Ramirez and McAlister 1988; Sussman et al. 1986; Worden et al. 1988).

The integration of smoking prevention curricula into comprehensive and multicomponent school health education curricula was one response to the findings of limited impact from early smoking-specific prevention efforts (see Davis 1977). The development of psychosocial approaches including social-influence and life skills programs in the 1970s was another response to the limited impact of early prevention efforts (Evans 1976; US DHEW 1979b). The integration of smoking prevention into general health education represented an important shift in the vehicle for antismoking messages, and the psychosocial approaches were based on a fundamental revision of the model underlying prevention strategies for smoking by youth.

The psychosocial approaches deviated from traditional antismoking education models by deemphasizing communication of the long-term health risks of smoking. Instead, these new curricula focused on young people's susceptibility to social pressures to smoke—influences inferred from consistent findings relating smoking by youth to smoking by their parents, siblings, and peers (Flay et al. 1983; US DHEW 1979c; US PHS 1964). In their various forms, social influence and life skills curricula have been designed to raise young people's awareness of the influences to smoke; to highlight the more immediate, and especially socially based, negative effects of smoking; and to "inoculate" youth against the effects of continued pressure and examples of others who smoke. The new approaches were bolstered by the literature on communication theory and on the psychosocial development of adolescents (US DHEW 1979b).

This Section covers the course of smoking prevention activities over the past 25 years. The first part presents a model of developmental stages of smoking acquisition as a framework for describing trends and options for prevention programs. This is followed by further description of the three major categories of current prevention programs and of cessation programs for youth. The next part describes in more detail the history of prevention activities of the major national voluntary health agencies, Federal support with emphasis on their early responses in the campaign to prevent smoking, and the activities of State and other organizations and agencies with emphasis on their recent activities. Considered next are problems in program dissemination and the gaps that frequently exist between the scientific literature and widespread program application in the field. Problems in program evaluation are reviewed in the next section. The review closes with a consideration of population factors such as changing attitudes toward smoking and secular trends in smoking prevalence as they relate to program diversification.

Prevention Opportunities Associated With Stages in the Acquisition of Smoking

As noted in the preceding chapter, several researchers (e.g., Flay et al. 1983; Leventhal and Cleary 1980) have proposed models of developmental stages in the acquisition of smoking. These models provide one dimension for describing and evaluating prevention opportunities and trends. The stages—for example, "preparation and anticipation," "initiation," "experimentation," "transition (becoming)," and "regular smoking" (Flay et al. 1983)—suggest a continuum of associated prevention oppor-

tunities. Spanning this developmental continuum are approaches to keep children from experimenting with tobacco, efforts to disrupt the evolution from experimentation to regular smoking, and early interventions aimed at influencing the young smoker to stop before the behavior and nicotine dependence become more firmly entrenched.

Stage models of smoking acquisition posit that different influences are at play at various ages; for instance, parents have a greater influence than peers in determining smoking intentions and behavior among young adolescents, while peers are more important for older adolescents. Social factors are viewed as more influential for beginning smokers, and physiological dependence and coping patterns as more important for the older, more established smokers (Flay et al. 1983; Leventhal and Cleary 1980; Chassin, Presson, Sherman 1985). (See Chapter 5, Part II.)

Prevention programs designed to reduce the number of young adolescents who initiate smoking reflect the dominant model for current smoking prevention. However, early antismoking education efforts addressed smoking by high school and college students (US PHS 1964), age groups encompassing several stages in smoking acquisition. The majority of current prevention programs focus on adolescents in grades 6 through 8, the age groups now at maximal risk for cigarette experimentation (Flay et al. 1983; Flay 1985a; Chapter 5). The shift of interest to smoking prevention programs aimed at younger adolescents is related to four considerations: (1) the findings of greater program impact among younger children (Jason, Mollica, Ferrone 1982; Johnson et al. 1986; Merki et al. 1968), (2) the general ineffectiveness of previous prevention approaches (Thompson 1978), (3) the recognition of secular trends toward earlier initiation of smoking (Evans et al. 1979; Flay et al. 1983; Chapter 5), and (4) the appeal of prevention versus the challenge of adult cessation (Evans et al. 1979).

A stage model of smoking acquisition and associated prevention opportunities suggests the potential for prevention programs aimed at even younger children in the preparation stage of smoking acquisition, the period during which early attitudes toward smoking are formed. The stage model also suggests cessation programs among older adolescents at the other end of the prevention continuum. Thus, some smoking prevention programs are directed at very young children in preschool or early elementary grades (ACS described in US DHHS 1986a; Peterson described in NCI 1986a; Pigg et al. 1985), and there are cessation programs directed at adolescents (e.g., ACS 1980, 1986; Weissmann et al. 1987). A call for continued development of programs addressing "pre-onset" issues and youth cessation was included in the National Cancer Institute (NCI) expert advisory panel's recommendations (Glynn, in press). Youth smoking cessation approaches are described in a later section in this Chapter.

Prevention Program Approaches

As outlined above, the evolution of prevention programs since the 1960s can be classified into three major approaches: media-based programs, smoking prevention in the context of multicomponent school health education, and psychosocial curricula. The three major approaches will be more fully described in this Section. Other resources and activities in the field will be described in a subsequent section.

Media-Based Prevention Programs

Media-based prevention approaches have included antismoking messages delivered through newspapers and television and radio broadcasts. Most often these have taken the form of brief announcements, but more extended special programs and curricula have also been developed and distributed. The American Lung Association (ALA), American Heart Association (AHA), American Cancer Society (ACS), and National Heart, Lung, and Blood Institute (NHLBI) sponsored one such extended prevention program, first aired in November 1984, a 1-hr Public Broadcasting System special, "Breathing Easy," aimed at young people (Bailey 1985; US DHHS 1986a).

Mass-media-based messages and programs were included among the earliest smoking prevention efforts of the Federal agencies and voluntary health associations. Flay (1986 and 1987b) has provided comprehensive reviews of these and later media-based smoking control efforts.

Early evaluations of mass media in health promotion were not encouraging, leading to Flay's (1986) appraisal that mass media programs alone are not effective. Reviewing studies of media campaigns that were used either as the sole intervention or in conjunction with other material and programming, Flay concluded that the most effective use of mass media in substance abuse prevention lies in furthering the dissemination of other prevention resources, such as school-based programs. Parents, for example, may become more supportive of the efforts of school-based prevention programs brought to their attention through the mass media (Flay 1986). In reviews of mass media campaigns specifically focused on smoking, Flay (1987a,b) found some basis for optimism about their potential impact on adult smoking cessation. He recommended, however, further evaluation of mass media campaigns for the prevention of adolescent smoking; only 3 of the 56 evaluations reviewed included specific reference to smoking by children (Flay 1987b).

There have been several controlled studies of mass-media-based prevention programs in recent years (Bauman et al. 1988; Sussman et al. 1986; Flay et al. 1988; Worden et al. 1988; Ramirez and McAlister 1988). A University of Southern California study demonstrated that effects on student smoking correlated with amount of attention to the television segments and amount of discussion of the program with others (Sussman et al. 1986; Flay 1987b; Flay and Sobel 1983; Flay, Hansen et al. 1987). The program, which parents were encouraged to watch with their children, also had a cessation effect on the adults' smoking (Flay 1986).

Mass media interventions can also augment other prevention programs, generating prevention effects that occur more broadly, acting over time in the aggregate to affect the level of public awareness and the social acceptability of smoking. The potential for this level of public health impact is described by Leventhal and Cleary (1980) and Warner and Murt (1982) in their consideration of factors inhibiting the rise of smoking rates in the late 1960s and 1970s.

Even small program effects can have a large public health impact, given the very large audiences of mass media (Flay 1987b), making the actual distribution and broadcasting of these programs critical. Dissemination of media materials has been dependent on the good will and interest of publishers and broadcast managers, or on funds for

purchase of air time and print space. In recent years, video news releases (essentially press releases on videotape) have been used increasingly by private health organizations and Federal agencies (including the Office on Smoking and Health) to motivate television news coverage of tobacco-related "events" (Davis 1988a).

Smoking Prevention Programs in the Context of Multicomponent School Health Education Curricula

Smoking prevention components have long been incorporated in more general school health programs. This represents an alternative approach to programs focused exclusively on smoking prevention. The development and evaluation of the 8- to 10-week curriculum of "Growing Healthy" have involved a partnership between Federal agencies and national voluntary organizations spanning three decades, with ALA serving as a lead agency in these endeavors. "Growing Healthy" is the combined Primary Grades Health Curriculum Project aimed at students in kindergarten through grade 3, and the School Health Curriculum Project (SHCP) aimed at students in grades 4 through 7. Both are designed to integrate smoking and health into a comprehensive school health education curriculum. An evaluation of the original SHCP component between 1982 and 1985 demonstrated a delay in onset of smoking among the seventh grade students who had been in the program. Among the intervention students, 7.7 percent had started smoking by grade 7, compared with 12.7 percent among the control group (US DHHS 1986a).

The School Health Education Evaluation Project (Connell and Turner 1985; Connell, Turner, Mason 1985) also included a review of "Growing Healthy," as well as of three other school health programs with various dimensions of program implementation and impact. "Growing Healthy" has been validated by the Department of Education and included in the National Diffusion Network (NDN), an organization that includes data on the extent of diffusion of curricula that have been evaluated and validated by the Department of Education (US DHHS 1986a). As part of NDN, dissemination of "Growing Healthy" is facilitated and monitored.

The Teenage Health Teaching Modules, a comprehensive health education program for junior and senior high school students, were developed by the Centers for Disease Control (CDC) Center for Chronic Disease Prevention and Health Promotion through a contract with Education Development Center, Inc., and are also currently being evaluated (US DHHS 1986a). They are also now being promoted as part of ALA's "Growing Healthy" activities. The American Health Foundation "Know Your Body" program is a multicomponent school health education curriculum aimed at reducing smoking and risk factors for coronary heart disease. A recent study of program impact after 6 years of intervention found significantly lower rates of initiation of smoking among subjects in the intervention schools (Walter, Vaughan, Wynder 1988). Another study comparing the effectiveness of this program's smoking prevention component when offered alone or as part of the multicomponent package is currently under way.

Although many substance abuse prevention programs have adopted social influence and life skills training approaches (Bell and Battjes 1985; Polich et al. 1984), prevention of tobacco use is not consistently part of, let alone prominent in, the derivative

programs. One rationale for integrating tobacco use prevention with prevention programs for other forms of substance abuse is provided by the recently increasing appreciation of the common nature of licit and illicit drug addictions (US DHHS 1988).

In addition to comprehensive school health education curricula developed and evaluated by Federal agencies and national voluntary organizations, curriculum guidelines designed by individual school systems and commercial textbook writers sometimes include antismoking components. No systematic review of this category of smoking prevention programs in comprehensive health education curricula exists.

The degree of emphasis on and implementation of smoking-specific prevention curricula can be obscured within more general health education curricula. Evaluation of the impact of these programs on smoking behavior has been far less detailed than in smoking-specific curricula. In addition, the integration of tobacco prevention programs into a basic health education curricula presents substantive questions of program impact: Will the same basic prevention material be more effective if presented independently, as a special program? Will its impact be augmented or decreased by an ongoing context of basic health education? Drawing on the currently available research and on preliminary findings from ongoing studies, an expert advisory panel convened by NCI in December 1987 concluded that school-based smoking prevention conducted within a multicomponent health focus appeared as effective as programs with an exclusive emphasis on smoking, provided the smoking component received a minimum level of attention. One criterion for this minimum level of attention was five classroom sessions in each of 2 years (Glynn, in press). More focused evaluations of smoking prevention in the context of school health education are needed to answer these questions.

While a unified multicomponent health education curriculum may be attractive to schools faced with a multitude of health education requirements, this approach to smoking prevention depends on the state of health education at the State and national levels and faces all the obstacles and challenges experienced by such larger enterprises (Iversen and Kolbe 1983; Kolbe and Gilbert 1984; Kolbe and Iversen 1984; Lohrmann, Gold, Jubb 1987).

Psychosocial Curricula

Increased funding of smoking prevention research in the 1980s (Bell and Levy 1984; NCI 1984, 1986a; Stone 1985), as well as the advocacy of using psychosocial approaches developed for smoking prevention for other substance abuse prevention efforts (Bell and Battjes 1985; Polich et al. 1984), has brought psychosocial approaches to the forefront of attention. From a research perspective, they represent the dominant strategy in smoking prevention, the culmination of the preceding 25 years of investigation.

Reviewing the literature on the psychosocial prevention curricula, Bell and Battjes (1985) identified two main types of programs: (1) the social influence curricula that foster youths' awareness of and ability to resist peer and other social pressures and influences to smoke (Dielman et al. 1985; Flay et al. 1985; Hurd et al. 1980; Johnson et al. 1986; Killen 1985; Luepker et al. 1983; Perry, Killen, Telch et al. 1980; Shaffer,

Beck, Boothroyd 1983), and (2) those more broadly structured to also strengthen more general social skills and competencies underlying initial vulnerability to these pressures to smoke, referred to as life skills training approaches or generic life skills approaches (Botvin, Eng, Williams 1980; Botvin and Wills 1985; Gilchrist and Schinke 1985; Schinke et al. 1985). Both varieties include programs that have been originally designed or expanded to include substance abuse prevention of other kinds. Components of psychosocial approaches have also been integrated into the more general health education curricula. The social influence approach growing out of work by Evans and his colleagues (Evans 1976; Evans et al. 1981) shifted the smoking prevention agenda from issues in the development and dissemination of antismoking educational messages to questions about ways to affect the psychosocial processes underlying children's responses to social influences to smoke.

The social influence and generic life skills curricula for smoking prevention are the best documented and most thoroughly evaluated among the smoking prevention programs. The field has reached the point that some general statements can be made concerning components of programs and the general extent of their effect (e.g. Glynn, in press).

Common features of programs that have been found to have positive prevention effects include a focus on students in the middle and junior high grades; multiple sessions; intervention components designed to correct young people's misimpressions of the social significance and prevalence of smoking among peers; emphasis on the short-term reasons not to smoke (both physiological and social); education regarding the variety of social factors (parental, peer, and media) influencing smoking; practice with skills used to resist offers to smoke and examples of smoking; involvement of peers, either as peer leaders or as videotaped role models; and public commitment procedures (Flay 1985a,b). In addition, life skills training curricula are likely to include program components to enhance decisionmaking, self-esteem, and social competencies (Botvin and Wills 1985).

Three minimum program components were recommended by the 1987 NCI expert advisory panel: information about the social consequences and short-term physiological effects of tobacco use; information about social influences on tobacco use, especially peer, parent, and media influences; and training in refusal skills, including modeling and practice of resistance skills (Glynn, in press). The panel added the caveat that the quality of the delivery of these components would be critical to their success. Teacher training and adoption of existing smoking prevention programs, as designed, were recommended as two assurances of better quality program delivery.

Although use of peer leaders or models has been a frequent component of these programs, evaluations comparing the role of peer versus adult leaders have been mixed regarding the importance of peer leaders to program success (Arkin et al. 1981; Clarke et al. 1986; Murray et al. 1984; Perry, Killen, Slinkard et al. 1980; Perry et al. 1983). The logistic challenges entailed in implementing a peer-led program also must be considered. Arkin and colleagues (1981) found, for instance, that "Teachers, principals and students generally had more trouble adjusting to peer-led programs than to the health educator led programs" (p. 614). The recent NCI panel concluded that the most effective use of peer leaders was as assistants to a trained teacher, with responsibility for car-

rying out specified program components (Glynn, in press). The findings of Perry and colleagues (1983) suggest that peer leaders may be most effective in delivering curricula focused on social pressures, as opposed to more traditional health effects curricula.

Within social influence and life skills curricula there has been a marked refinement of research methods and a better scientific and theoretical basis for program design and evaluation. Flay (1985a,b) described in detail the evolution of psychosocial smoking prevention programs and their evaluations, in which methodological progress has been made. This progress includes greater numbers of schools per condition, use of randomization, and greater emphasis on internal validity of programs. The use of procedures to validate reports of smoking status (Evans 1976) has also reflected the increasing methodological rigor of the psychosocial curricula research. Validated behavioral outcomes of prevention programs have progressively replaced earlier reliance on changes in measures of attitudes and intentions and on self-reported smoking, thus providing a firmer ground for comparison of program impact.

After more than one decade of this research, however, the findings are characterized as tentative and subject to further evidence. No single study unequivocally establishes the effectiveness of the psychosocial approaches, but reviewers, taking the sum of the research, see support for the potential of these programs. The social influence and life skills training approaches programs have been characterized as capable of a 50-percent reduction of smoking onset that has been shown to persist for up to 2 years (Flay 1985a; Botvin, Renick, Baker 1983). The promise of these programs is tempered by such factors as the complexity of the natural history of smoking acquisition (Cleary et al. 1988) and the continued need for long-term followup. (See subsequent sections for further discussion of these factors.)

Two other variations in smoking prevention programs also have been considered and, pending their further development, are best classified along with the social influence approaches. One is the parent-oriented approach to social influences, whereby parents and their communication skills and influences are the direct object of intervention (Worden et al. 1987; Oei and Fea 1987). Parental support and involvement in school-based smoking prevention programs, especially for pre- to grade 6 programs, is recommended in Glynn (in press). Worden and colleagues (1987) tested the smoking prevention effects of communication skills workshops for parents. While not presented to parents as a smoking prevention program, smoking was a focal topic and example throughout. Six months after the program was offered, significantly lower levels of self-reports of smoking among the fifth and sixth grade students in the communities that received high-intensity workshop coverage were demonstrated. Based on Oei and Fea's (1987) review of data and rationale from studies bearing on youth smoking and on parents as educators, they recommend further utilization of parents in smoking prevention programs with young children.

Another variation of smoking prevention programs using a cognitive development approach also builds on a developmental perspective on smoking acquisition. However, it considers social influences as but one set of factors bearing on the initiation of smoking among the young. Understanding processes of addiction, mechanisms for controlling emotions, and the relationship between smoking-induced sensations and

health threats is also seen as bearing on smoking by youth (Glynn, Leventhal, Hirschman 1985). A prevention program based on this model has been developed for students in the early stages of contemplating *and* experimenting with smoking. This cognitive development program significantly deviates from the social influence curricula in its inclusion of both young nonsmokers and smokers and in its examination of nonsocial influences on their experience of smoking. However, the age groups targeted are the same, social influences are also part of the curricula, and, more fundamentally, the program shares with the social influence curricula a theory-based approach to directly intervening in the processes and needs thought to underlie the development of smoking among young people. An 18-month followup of program and control students in grades 6 through 8 revealed significant differences in attitudes toward smoking and in students' self-reports of smoking (Glynn, Leventhal, Hirschman 1985).

Youth Smoking Cessation Programs

Youth smoking cessation programs are properly viewed as part of smoking prevention efforts to the extent that their ultimate goal is the prevention of the establishment of dependent, regular smoking. The limited research in this area cannot yet suggest the optimal balance of traditional "prevention" and cessation strategies for programs targeting young smokers. Some young smokers may exhibit much variability in their smoking; others show a pattern of consumption very closely resembling older, addicted smokers. (See Chapter 5.)

Recent interest in teenage cessation has been heightened by increasing social disapproval of smoking and acceptance of its restriction on the part of adolescents and society more broadly (Johnston, O'Malley, Bachman 1987; US DHHS 1986b), as well as voluntary health association and public health agency commitments to promoting non-smoking environments in the schools (National School Boards Association 1987; US DHHS 1986a).

Data on naturally occurring rates of quit attempts and cessation among young smokers support interest in teenage cessation. These rates range from 18 to over 50 percent cessation with varying followup periods and suggest considerable flux in the natural history of smoking, as well as opportunities for intervention with young smokers after they begin experimenting with cigarettes (Alexander et al. 1983; Chassin, Presson, Sherman 1984; Ershler et al., in press; Hansen 1983; Hansen et al. 1985; O'Rourke, Nolte, Smith 1985; Skinner et al. 1985; US DHHS 1982).

Many of the early antismoking education programs incorporated cessation functions by virtue of their inclusion of older youth. Description of these early teenage smoking cessation programs, including those among the prototypes of antismoking education for youth, is included in the 1979 Surgeon General's Report (US DHEW 1979b) and in Seffrin and Bailey (1985). Smoking cessation programs specifically for youth have been developed by researchers (Weissman et al. 1987; St. Pierre, Shute, Jaycox 1983), voluntary associations (ACS 1980, 1986; Bennett, Austin, Janizewski 1986), and school personnel (Hulbert 1978). Program effects on cessation rates among young smokers have also been examined in studies that emphasize prevention of initiation (Best et al. 1984; Botvin, Renick, Baker 1983; Johnson et al. 1986; Perry, Killen, Telch

et al. 1980). Cessation programs addressing young people's use of smokeless tobacco have also been designed (e.g., Glover 1986; Severson et al. 1987). NCI is currently funding research on both prevention and cessation interventions for smokeless tobacco use, though no outcomes have been reported as yet (NIH 1986).

Teenage cessation programs have met with mixed success, in terms of both recruitment and retention of program participants, and of program impact. Study of teenage cessation programs has also generally suffered from very small numbers of participants (in part, a reflection of difficulty in recruitment) and from a dearth of formal outcome evaluations. Subject characteristics, including baseline smoking levels, vary greatly from study to study, as do length of followup periods and outcome criteria considered. Although these limitations to the research are substantial and restrict conclusions that can be made concerning the efficacy of teen smoking cessation programs, the emergence of new demands for and research on such programs warrants the following review in comparatively more detail than for other larger and more controlled smoking prevention studies.

St. Pierre, Shute, and Jaycox (1983) found reductions in self-reported rates of consumption among 10 of the 11 teen smokers who regularly participated in their program of peer-designed and peer-led "stop smoking" clinics. In evaluating AHA's "Save a Sweet Heart" program's no-smoking pledge day component, Bennett, Austin, and Janizewski (1986) found that the pledging was related to cessation at a 1-year posttest in their sample of 194 10th-grade male smokers only, but not in the sample of 315 10th-grade female smokers. Overall, female students, including nonsmokers and smokers, were more apt than males to participate in the pledge component of the program.

Weissman and colleagues' teen cessation program (1987) used a contingency-based system of monetary rewards for reduction of expired carbon monoxide levels. The study suggested some promise among the males; four of the six male participants maintained abstinence during the 5-month followup period, with only limited "slips." However, all of the five females dropped out of the program before completion.

Perry, Killen, Telch, and colleagues (1980) compared the effects of a four-session program emphasizing the immediate physiological effects of smoking and the role of social influences with outcomes from a more traditional curriculum emphasizing the long-term health effects of smoking. Statistically significant differences in self-reports of smoking 5 months later were found within the treatment group of 498 10th-grade students, pre-and posttest for daily and monthly smoking; and between treatment and control (399 10th-grade students) groups posttest only for weekly and monthly smoking. Significant differences in corresponding measures of expired carbon monoxide were also found.

Taken in sum, there is some evidence that adolescent smoking cessation programs are efficacious, although the data and analyses are limited and difficult to interpret, and results are, therefore, far from conclusive. Further research and continued program development in this area are greatly needed.

History of Agency and Organizational Prevention Activities

Although the concept of disease prevention did not gain its widest currency and impact in antismoking efforts or in health promotion and medicine as a whole until the late 1970s (US DHEW 1979a), young smokers always have been an important focus of antismoking efforts. Prevention activities were under way during the 1950s and early 1960s, even as the data on the health consequences of smoking were being reviewed by the scientific community (US DHEW 1979b). This Section on the history of prevention programs covers the national organizations' initial antismoking efforts and State departments' more current responses to the smoking problem, and the activities of a range of other organizations and agencies. The emphasis is on the major directions of their efforts, as opposed to comprehensive cataloging of all programs and initiatives.

National Voluntary Health Organizations

The three major national voluntary health organizations involved in the antismoking campaign, ACS, AHA, and ALA (previously called the National Tuberculosis Association and later the National Tuberculosis and Respiratory Diseases Association), developed their own curricular materials and resources for use in schools, as well as mass-distributed brochures, posters, films, and PSAs. In addition, they have funded smoking prevention research conducted by outside investigators (Bell and Levy 1984) and have contributed to the development of comprehensive school health education curricula that include smoking.

In the late 1960s, in conjunction with CDC and other agencies, ALA began funding the development of the School Health Curriculum Project and the Primary Grades Health Curriculum Project, now jointly referred to as "Growing Healthy" (see description in earlier section). In addition to promoting the adoption of "Growing Healthy" in schools nationwide, ALA has developed smoking education modules and curriculum materials, and a variety of films and posters.

More recently, ALA developed the Biofeedback Smoking Education Project (BIOSEP) for students in grades 7 through 12, using student smokers and laboratory equipment, as a firsthand demonstration of the immediate negative physiological effects of smoking (Mitchell 1978; Young, Chen, Cernada 1982). Two studies have evaluated the effect of BIOSEP on the smoking behavior of adolescents, Mitchell (1978) and Young, Chen, and Cernada (1982). However, the outcomes from these two studies are not consistent and offer only modest support for BIOSEP's effects on smoking behavior.

An alternative approach for younger students aged 9 to 13 years is ALA's "Smoking Deserves a Smart Answer" (Bailey 1985). This kit uses a social influence approach centered on specific responses to direct peer pressure to smoke and includes humorous posters, stickers, a teacher resource guide, student worksheets, and sample role-playing situations.

Having issued a policy statement in 1963 to discourage smoking among both children and adults, AHA in 1967 developed sets of materials including a kit with a brochure for children to help their parents quit, a program that again may have had both cessa-

tion and prevention impact. Similarly, AHA's "Like Father, Like Son" campaign tapped both cessation and prevention themes.

AHA also has developed educational modules to prevent smoking among youth. Both the "Save a Sweet Heart" program and "Let's Talk About Smoking" are based on social influence approaches, the former involving parodies of cigarette advertisements and the use of a pledging procedure, the latter teaching skills to resist peer pressure to smoke (US DHHS 1986a). Brochures have also been aimed at smoking in the context of the family (*Children and Smoking: Message to Parents* (AHA 1987)).

In 1964, a National Conference on Cigarette Smoking and Youth was held under the auspices of ACS. Forty-four national organizations with a mission concerning young people participated. ACS developed numerous antismoking PSAs with prevention messages, including a 1967 television spot focused on the influence of parental smoking on children's acquisition of smoking. Other early campaigns used popular cartoon and children's story characters such as "The Three Little Pigs" to convey antismoking messages.

ACS has developed a series of health and smoking prevention programs for students in kindergarten through the intermediate grades. "An Early Start to Good Health," "ACS Health Network," "Healthy Decisions," and "Health Myself" are among the most widely disseminated ACS youth health education programs (US DHHS 1986a). The last of these programs, geared to students in the intermediate grades, emphasizes the role of societal influences on smoking. Referred to earlier in this Section, ACS has also developed teen cessation programs (ACS 1980, 1986).

In 1987, ACS, AHA, and ALA began a collaborative campaign for a "Tobacco-Free America." The project involves multiple goals and strategies, including smoke-free schools, mass media and advertising campaigns, a smoke-free class of 2000 promotion, and legislative initiatives (Bailey 1987). State-level coalitions of the three voluntary organizations also have developed programs of their own in support of this effort (US DHHS 1986a).

The prevention program efforts of the voluntary associations were fairly quick responses to the accumulating data on the health risks of smoking. Their materials have used several channels of potential influence on young people's smoking, primarily including family, media, and the school system. Compared with other prevention approaches, the family and parental influences have been emphasized—specifically, the influence of parental smoking on the initiation of smoking by children. Antismoking messages in the context of the family thus could have both prevention and cessation effects; parental nonsmoking was advocated as a powerful preventive influence. Wide distribution of materials was possible. The comprehensive school health education curricula were evaluated while the other programs incorporated only limited evaluation. The extent of actual utilization and impact of the specific distributed materials is not known.

National Interagency Council on Smoking and Health

The National Interagency Council on Smoking and Health, created shortly after the first Surgeon General's Report, fostered the early development of a variety of innova-

tive smoking prevention programs, many of which went on to receive continued major support from other Federal agencies. The “Youth Leadership in Smoking Controls Program,” begun in 1976 with funds from CDC and renewed through 1979, was not intended as a study of adolescent smoking education programs per se. Rather, its primary goal was “to identify new approaches for involving youth in smoking control activities” (National Interagency Council on Smoking and Health 1979, p. 12.). Anticipating later prevention programs’ orientation to the psychosocial factors affecting youth smoking, the program required that projects “show sensitivity to the needs, lifestyles and feelings of the 12–18-year-old adolescent,” and involve youth in the design and delivery of the material (p. 12). Thirteen smoking prevention projects were supported through these contract funds, none receiving more than 10,000 dollars in any one award. Extent of program evaluation varied greatly. Projects resulting from this program were described in the program’s final report (National Interagency Council on Smoking and Health 1979) and in *Cookbook for a Smokeless Diet*, a humorous manual written for teachers and community members (National Interagency Council on Smoking and Health 1977). (See next section for further discussion of the National Interagency Council.)

Federal Government Prevention Support

The late 1970s were a key time for Federal Government involvement in and funding of prevention programs. Until that time, federally funded research emphasized biomedical mechanisms of smoking-related disease, as opposed to research on smoking behavior and interventions to reduce its prevalence (Bell and Levy 1984). Secretary of Health, Education, and Welfare Joseph A. Califano’s 1978 initiative to combat smoking led to appropriations for Federal agencies to support biobehavioral research into the factors affecting smoking and for the development of prevention and cessation programs (Bell and Levy 1984). Each of the Federal agencies developed initiatives for such research.

Depending on the agency, smoking was the sole behavior targeted or, in other cases, one of a set of behaviors the agency sought to prevent. For instance, the National Institute on Drug Abuse (NIDA) was concerned with substance use more broadly, NHLBI with cardiovascular risk factors. The agencies within the Department of Health and Human Services (successor to the Department of Health, Education, and Welfare (DHEW)) with initiatives most directly bearing on the prevention of tobacco use among children and adolescents included NCI, the National Institute for Child Health and Human Development (NICHD), NIDA, NHLBI, and CDC. In addition, OSH (Bell and Levy 1984) (OSH is now part of CDC) developed such initiatives. Federal health agency and OSH prevention initiatives included both research support leading to the development of prevention programs and the production of prevention resources and programs for direct use by schools and other organizations. In addition, guides of existing resources are periodically produced by Federal agencies, including *Smoking Programs for Youth* (US DHHS 1980a) and *Smokescreen: Guidelines for Helping Teenagers Become Nonsmokers* (American Institutes for Research 1980), contracted by CDC.

Office on Smoking and Health

The U.S. Public Health Service first officially became engaged in an appraisal of the available data on smoking and health in June 1956 when, under the direction of Surgeon General Leroy Burney, a scientific study group was established (Burney 1959). In 1957, the Public Health Service adopted the position that "excessive smoking is one of the causative factors in lung cancer" (Burney 1959). In 1964, DHEW became actively involved in efforts to discourage smoking.

The seminal smoking-and-health event in this evolution of Federal involvement was the 1964 release of the Surgeon General's Report on Smoking and Health. At that time, Surgeon General Luther Terry established an office within the Public Health Service Chronic Disease Control Program (US DHHS 1986a) to help collect, organize, and analyze information on smoking and health. This office later became the National Clearinghouse for Smoking and Health and still later (March 1978), OSH. (See Chapter 7.)

In the early years of the Clearinghouse, a number of innovative smoking control initiatives were supported, some of which are continued today by CDC, Center for Chronic Disease Prevention and Health Promotion (which now includes OSH), and by the Department of Education (US DHHS 1986a). Initially, the Clearinghouse developed curricula and teaching materials to educate young people about the hazards of tobacco use (US DHHS 1986a). Many of these materials are now being used in schools across the country. The Clearinghouse pioneered an effort to place PSAs in high school newspapers. It was also involved with mass distribution of pamphlets, program materials, and television PSAs. Between 1966 and 1971, the Clearinghouse conducted the first study of a communitywide smoking control intervention in San Diego County, CA (US DHEW 1976). This project involved interventions aimed at schoolchildren, health professionals, and adult smokers.

The San Diego project developed curriculum guides for students in grades 1 through 12, as well as newsletters to support the efforts of teachers and other health professionals involved in the project. A "Youth-to-Youth" program, precursor to peer-led programs, was also included. Although evaluation of the project was limited, the data collected suggested that the intervention had been successful. Survey results show significant reductions between 1966 and 1975 in the percentage of teenage and adult smokers in San Diego compared with national samples (US DHEW 1976). The programs of the San Diego Community Laboratory led to the development of other comprehensive health curriculum projects such as the School Health Curriculum Project.

Today, OSH continues its efforts for smoking prevention through the development and distribution of educational materials. It currently has a program of disseminating print PSAs through high school and college newspapers, as well as televised PSAs aimed at teenagers (US DHHS 1986a).

OSH has been the only Federal office devoted solely to the smoking issue. Now part of CDC, the Office continues to perform the same functions that were established for the Clearinghouse in the 1960s (US DHHS 1986a). OSH continues to serve as a repository for information on smoking and health and responds to thousands of public

inquiries for information each year. As part of its technical information service, it publishes a bimonthly bulletin of abstracts of published literature on smoking and health and periodically compiles a directory of ongoing research in smoking and health. OSH also periodically conducts surveys to estimate the prevalence of tobacco use among adults and adolescents and to determine the Nation's attitudes, knowledge, and beliefs concerning smoking, tobacco use, and their health effects. OSH continues to plan, coordinate, and produce public and professional information and education programs on smoking and health that are distributed either directly or through other institutions such as voluntary health organizations and State and local health departments. It is the responsibility of OSH to prepare and disseminate the annual Surgeon General's Report to Congress on the Health Consequences of Smoking, as required by Federal law (Public Law 91-222). Finally, OSH has new responsibilities under the Comprehensive Smoking Education Act of 1984 (Public Law 98-474) to collect information from the cigarette industry on cigarette additives, to transmit to Congress a biennial status report on smoking and health (US DHHS 1986a), and to provide staff support to the newly created Federal Interagency Committee on Smoking and Health (see Chapter 7).

National Cancer Institute

In the 1950s, scientists working at the NCI were among those who helped identify cigarettes as a cause of illness and premature death (Burney 1959). In 1955, NCI, in cooperation with the U.S. Bureau of the Census, sponsored the first large-scale national survey of smoking patterns in the United States (Burney 1959). It was not until 1968, however, with the appointment of the Lung Cancer Task Force, that NCI established a formal research program to address the smoking issue. The Lung Cancer Task Force and a subcommittee of the Task Force, the Tobacco Working Group, established three objectives for the program: (1) production of a less hazardous cigarette, (2) identification of persons at increased risk of tobacco-related disease, and (3) development of pharmaceutical interventions to control smoking behavior. Development of a less hazardous cigarette was given a high priority until 1978, when this aspect of the program was abandoned.

Prior to 1977, NCI funded little research on behavioral interventions for smoking. A major shift occurred in 1980, when prevention was identified as an NCI priority (NCI 1984). In 1982, NCI reorganized its smoking research program, establishing the Smoking, Tobacco, and Cancer Program (STCP) within the Division of Cancer Control (Cullen 1986; Cullen, McKenna, Massey 1986; Glynn, in press). Included in STCP funding was research to prevent adolescent tobacco use. In fiscal year 1985, STCP funded 14 grants on adolescent tobacco use and its prevention, with budgets totaling over 5.5 million dollars for the year. The studies were designed to include approximately 170,000 students in grades 6 through 12 (NCI 1984, 1986a). Twenty-three adolescent smoking intervention trials, involving approximately 1 million youth, were under way by early 1988 (Glynn, in press). In response to increased use of smokeless tobacco among young males in the 1970s and 1980s (US DHHS 1986c), NCI also took the lead in funding smokeless tobacco prevention programs. Seven of the 23 NCI-funded trials focus on the prevention of adolescent use of smokeless tobacco.

The prevention and control of smoking and other forms of tobacco use have become top priorities for cancer prevention within NCI (Fanning 1988). In 1987, 80 percent of the 37 million dollars spent on smoking research was allocated to studies of smoking behavior. Smoking research accounted for approximately 2.7 percent of NCI's total budget in 1987.

After funding intensive research for several years in the development and evaluation of smoking prevention programs, NCI has begun to emphasize the need for widespread dissemination of these and other smoking intervention programs (NCI 1986b) and has so far funded two new studies of the integration of tobacco education in the schools.

National Heart, Lung, and Blood Institute

NHLBI began funding smoking prevention efforts in 1974 through the Vermont Lung Center; NHLBI had received an expanded mandate (for research on the prevention of behavioral risk factors) legislated by the National Heart, Blood Vessel, Lung and Blood Act of 1972. Continuing through 1983, the Vermont Lung Center's activities included a smoking prevention program aimed at youth aged 10 to 15 years (Stone 1985).

During the mid-1970s, NHLBI supported the paradigm-setting work of Evans and his colleagues in the development of socially and psychologically based prevention programs (Evans 1976; Evans et al. 1981), and the development of the peer-taught smoking and substance abuse prevention program of McAlister and colleagues (McAlister et al. 1980; Stone 1985). The majority of the smoking prevention programs sponsored by NHLBI in the years to follow were part of more comprehensive, and often communitywide, approaches to cardiovascular risk reduction. In the early 1980s NHLBI was sponsoring 15 school-based cardiovascular risk studies, 10 with explicit smoking prevention components—in all but 2 of the 10 studies, other risk factors such as nutrition and physical activity were also targeted (Stone 1985).

National Institute on Drug Abuse

In the mid-1970s, NIDA addressed the behavioral factors of cigarette smoking and the addictive properties of nicotine by supporting research and issuing a series of monographs on cigarette smoking by Jarvik and colleagues (1977) and Krasnegor (1979a,b). In addition to sponsoring research on nicotine dependence and treatment in their own right, NIDA has approached cigarette smoking as another form of substance abuse and as a possible "gateway drug" that could lead to the use of other substances (US DHHS 1986a). The new smoking prevention programs were used as a prototype for the prevention of other forms of substance abuse (Bell and Battjes 1985).

National Institute for Child Health and Human Development

NICHD began funding of research on smoking and health in the early seventies. During the mid-1970s, this effort was intensified as part of a program initiated by Secretary of Health, Education, and Welfare Joseph A. Califano. At that time the Institute identified two primary research areas: (1) factors related to risk-taking behavior

by children and the initiation of smoking, and (2) the effect of maternal smoking on the developing fetus. Emphasis on these two areas continues to the present. NICHD is working with the American College of Obstetricians and Gynecologists to develop a smoking cessation program for pregnant women, to be used in private obstetricians' practices.

Office of Disease Prevention and Health Promotion

The Office of Disease Prevention and Health Promotion (ODPHP) coordinates all prevention activities in the Public Health Service. ODPHP has sponsored evaluation of school health curricula's effects on smoking behavior (US DHHS 1986a) and supported a national survey of 8th and 10th graders' health knowledge, attitudes, and practices, including their smoking behaviors (US DHHS, in press; see Chapter 5).

Surgeon General's Reports

The Surgeon General's Reports and the media coverage surrounding them are among the primary ways that the Federal Government informs the public about the health consequences of tobacco use. The themes, emphases, and detailed reviews of these reports reflect the knowledge and interests of a large group of scientists in the United States and abroad. (Chapter 1 provides a list of the major topics covered in each of the Surgeon General's Reports since 1964.)

While not including a description of or specific recommendations for prevention programs, a section entitled "Taking Up Smoking" was included in the 1964 Report's Chapter entitled "Psychosocial Aspects of Smoking." The changing relationship of the child's smoking to parental and peer smoking as the child grows older was noted in the 1964 Surgeon General's Report: "As children grow older, they themselves, as well as their relationship to the home, change. With approaching adulthood and its associated new social patterns, other influences supplant those of the parents" (US PHS 1964, p. 369). As a further indication of prevention programs' roots in a stage approach to smoking acquisition, the 1964 Report continued, "It is quite possible that parents' influence affects the age at which children start smoking much more than it affects the ultimate taking or not taking up of the habit" (p. 370). (See Chapter 5 regarding determinants of smoking behavior.)

Consideration of young people and smoking in the Surgeon General's Reports after 1964 was initially restricted to documenting the extent of health effects among young smokers. Then in the 1977-78 Report, under the heading "Implications for Action," it was concluded that "dissuading young nonsmokers from starting to smoke" would result in the "greatest long-term benefits" compared with modifying the content of cigarettes or getting adult smokers to quit (US DHEW 1978, pp. 48-49). As for specific prevention approaches, the Report concluded that "health education of the young" was one of several antismoking efforts affected by "lack of knowledge on smoking behavior ... Although much is known about some of the principles contributing to effective health education of the young, these have not yet been incorporated into programmes, which